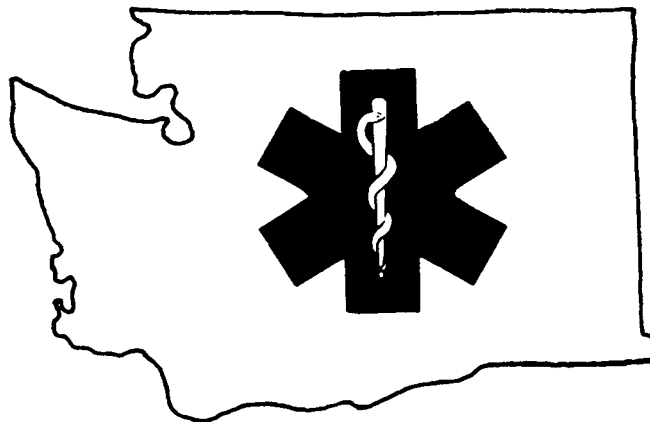


WASHINGTON STATE
DEPARTMENT OF HEALTH
HEALTH SERVICES QUALITY ASSURANCE DIVISION
OFFICE OF EMERGENCY MEDICAL
AND TRAUMA PREVENTION



BASIC LIFE SUPPORT
FIELD PROTOCOLS
for EMT-B Trained Personnel

ABRIDGED VERSION

REVISED, December 2000



These protocols have been reviewed and endorsed by the Medical Program Directors and the Department of Health, Licensing and Certification Advisory Committee.

For questions or comments, contact:

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These Basic Life Support Field Protocols for EMT-Basic trained personnel are State Protocols that establish the standard for field performance. EMS County Medical Program Directors may NOT have protocols that vary from these without specific written approval from the Department of Health. Any deviation from these protocols must be identified to and approved in writing by the Department of Health.

THESE FIELD PROTOCOLS WERE DEVELOPED AND WRITTEN WITH THE ASSISTANCE OF THE FOLLOWING INDIVIDUALS:

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The protocols have been reviewed and endorsed by the Medical Program Director and the DOH, Licensing and Certification Committee

Introduction

These protocols were developed by the Washington State Protocol Work Group based on the Washington State EMT-Basic Curriculum, Revised September 1996, and represent the consolidation of medical procedures for emergency prehospital patient care, from many local and national sources.

These protocols were developed for use by EMT-Basic trained and certified personnel. No person may provide any treatment they are not trained to provide AND are not certified by the Department at the required level of certification.

The assessment information in the General Orders is intended to be considered with all protocols. In addition, the General Medical Assessment should be considered with all medical protocols, the General Trauma Assessment should be considered with all trauma protocols, and the Pediatric Assessment should be considered with all pediatric protocols.

These protocols are intended to:

1. Provide direction for the use of appropriate emergency medical care procedures, based on the Washington State EMT-Basic curriculum training modules (identified on pages iii through v of the curriculum), to be used by EMT-Basic certified personnel while working under the direction of the County Medical Program Director;
2. Provide for the standardization of prehospital care in Washington State;
3. Provide base hospital physicians and nurses with an understanding of what aspects of patient care have been stressed to EMS personnel and what their treatment capabilities may be;
4. Provide EMS personnel with a framework for prehospital care and an anticipation of supportive orders from Medical Control;
5. Provide the basic framework on which Medical Control can conduct quality improvement programs.

They are not intended to:

1. Be a replacement for “on-line” medical control;
2. Be a teaching manual for EMS personnel. It is assumed that EMS personnel are appropriately trained and that each person will continue to meet the state’s continuing education requirements for recertification. It is further assumed that the County Medical Program Director will provide continuing education based on the results of patient care audit and review;
3. Interfere with the wishes of the patient or family;

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GENERAL ORDERS

1. Scene Size-up/Assessment

- A. Body Substance Isolation Per Agency Exposure Control Program
- B. Scene Safety

2. Initial Patient Assessment

- A. Airway - Breathing - Circulation
 - 1) If EMS NO-CPR form/bracelet intact, follow protocol for EMS NO-CPR
- B. Consider ALS Response And Support As Identified In The Regional Patient Care Plan and/or Patient Care Procedures

3. Focused History And Physical Exam - Medical Patients (see Medical Assessment, page 6)

4. Focused History And Physical Exam - Trauma Patients (see Trauma Assessment, page 22)

5. Detailed Physical Exam

- A. Patient And Injury Specific
- B. Perform A Detailed Physical Examination For Additional Information

6. Ongoing Assessment

- A. Repeat And Record Initial Patient Assessment, Including Time
- B. Reassess Mental Status
- C. Maintain Open Airway And Monitor Breathing For Rate And Quality
- D. Reassess Pulse For Rate And Quality
- E. Monitor Skin Color And Temperature
- F. Re-Establish Patient Priorities
- G. Reassess And Record Vital Signs, Include Time
- H. Repeat Focused Assessment Of Patient Complaint Or Injuries
- I. Check Interventions
- J. Monitoring Of IV Fluids By Trained And Authorized Personnel

7. Communications

- A. Radio Information Protocol During Transport.
 - 1) Identify ambulance service
 - 2) Patient's age, sex, and primary complaint or problem
 - 3) Physical assessment findings including, vital signs and level of consciousness
 - 4) Pertinent history as needed to clarify problem (medications, illnesses, allergy, mechanism of injury)
 - 5) Treatment given and patient's response
 - 6) Estimated time of arrival
- B. Verbal And Written Report To Emergency Department Nurse Or Physician
- C. Consider Critical Incident Stress Debriefing As Necessary

8. Transportation

- A. Advise Emergency Department Of Changes In Patient's Condition During Transportation
- B. Continue Ongoing Assessment And Patient Care

9. Clean, Service and Restock Vehicle

GENERAL MEDICAL ASSESSMENT

- 1. Scene Size-up**
- 2. Initial Patient Assessment**
- 3. Focused History And Physical Exam**
 - A. Assess Complaints And Signs And Symptoms, Responsive Patient
 - 1) O-P-Q-R-S-T assessment guidelines
 - 2) Obtain SAMPLE history
 - 3) Obtain vital signs
 - 4) Conduct AVPU mental status exam as needed
 - 5) Intervention
- 4. Perform Ongoing And/Or Detailed Assessment As Needed**
- 5. Transport**

ALLERGIES

Note: Life threatening airway/respiratory compromise may develop as the reaction progresses.

A. Signs And Symptoms

- 1) Not all signs and symptoms are present in every case
- 2) History - Previous exposure; Previous experience to exposure; Onset on symptoms; Dyspnea
- 3) Level of Consciousness - Unable to speak; Restless; Decreased level of consciousness; Unresponsive
- 4) Upper Airway – Hoarseness; Stridor; Pharyngeal edema / spasm
- 5) Lower Airway – Tachypnea; Hypoventilation; Labored-Accessory muscle use; Abnormal retractions; Prolonged expirations; Wheezes; Diminished lung sounds
- 6) Skin – Redness; Rashes; Edema; Moisture; Itching; Urticaria; Pallor; Cyanotic
- 7) Vital Signs – Tachycardia; Hypotension
- 8) Gastrointestinal - Abnormal cramping; Nausea/vomiting; Diarrhea

Note: When a paramedic system exists, ALS rendezvous shall be arranged as soon as possible as directed by local or regional patient care procedures or when directed by medical direction/control.

B. Emergency Medical Care

- 1) Remove offending agent (i.e. Stinger)
- 2) Clear the airway, provide oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment (see Oxygen Delivery, page 34)
- 3) Anaphylaxis/Allergic Reaction with Severe Respiratory Distress
 - a) Circulation
 - b) Epinephrine 1:1000 (Administered by a Epi Auto-injector from your EMS supplies)
 - i) Dosage:
 - a. **Adult:** (30 kg or 66 lbs and higher) - one adult auto-injector (0.3 mg)
 - b. **Infant and child:** (Under 30 kg or 66 lbs) - one pediatric auto-injector (0.15 mg)
 - ii) Assure not cloudy or crystallized
 - iii) Only to be administered following approval by on-line or off-line medical direction/control.
 - a. Patients 17 yrs. of age or younger:
 - i. Obtain verbal or written permission from the patient, or the patient's parent or guardian to administer Epinephrine.
 - b. Patients of any age with evidence of a prescription, administer Epinephrine.
 - iv) Record time of injection and reassess in two minutes
 - v) Patients 18 yrs. of age or older, with no evidence of a prescription:
 - a. Contact medical control
 - b. Provide supportive care and transport.
 - c) If the administration of Epi is refused do not administer Epi, contact medical control and continue supportive care.
- 4) Pulse Oximetry if available
- 5) Psychological support

ALTERED MENTAL STATUS

- A. Use AVPU Mnemonic To Determine Level Of Responsiveness
 - 1) Alert and oriented
 - 2) Responsiveness to verbal stimuli
 - 3) Responsiveness to painful stimuli
 - 4) Unresponsiveness
- B. Attempt To Determine Cause Of Altered Mental Status, If Possible; E.G., Overdose, Medical Condition By SAMPLE History Or Trauma Assessment
 - 1) Signs and symptoms
 - 2) Allergies
 - 3) Medications
 - 4) Pertinent past history
 - 5) Last oral intake
 - 6) Events leading to the injury or illness
- C. Emergency Medical Care
 - 1) Provide oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment (see Oxygen Delivery, page 34)
 - 2) Do not leave unattended
- D. Pediatric Considerations
 - 1) Attempt to determine cause; i.e., hypoglycemia, poisoning, post seizure, infection, head trauma, hypoperfusion
 - 2) See above for emergency medical care

BEHAVIORAL EMERGENCIES

CAUTION:

Be alert, patient behavior may change rapidly and the scene may become unsafe.

A. If Scene Is Not Secure

- 1) Guarantee your own safety
- 2) Call the police
- 3) Locate the patient
- 4) Assess and treat life-threatening problems
- 5) If show of force necessary to render care, contact law enforcement and medical control

B. If Scene Seems Secure

- 1) Scan for signs of items contributing to crisis

C. Signs And Symptoms

- 1) Psychological Crisis
 - a) Panic
 - b) Agitation
 - c) Bizarre behavior
 - d) Danger to self or others
- 2) Suicide Risk
 - a) Depression
 - b) Suicidal gestures
 - c) Mental Status Examination (see Altered Mental Status, page 8)

D. Emergency Medical Care

- 1) One EMT to assume control of situation
- 2) Speak in a calm quiet voice, maintain eye contact and move slowly
- 3) Answer questions honestly
- 4) Do not leave the patient alone or turn your back
- 5) Restrain only if necessary for your protection or that of the patient

E. Transport

- 1) If patient consents, follow general medical assessment guidelines (see page 6)
- 2) If patient refuses, obtain consent according to local protocol

CARDIOVASCULAR EMERGENCIES

- A. Onset/Provocation/Quality/Radiation/Severity/Time
- B. Signs And Symptoms
 - 1) Chest pain
 - 2) Difficulty breathing
 - 3) Skin changes (pale, sweaty, cyanotic)
 - 4) Anxiety/irritability (feeling of impending doom)
 - 5) Circulatory (irregular pulse/BP, shock, pulseless)
 - 6) Nausea/vomiting
- C. Allergies/Medications/Previous Hx/Last Intake/Events Prior
- D. Emergency Medical Care
 - 1) Patient responsive, c/o chest pain/pressure/SOB/sweating
 - a) Provide supplemental oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment, (see Oxygen Delivery, page 34)
 - b) Patient's own, physician prescribed Nitroglycerin available; assist patient with self administration of Nitroglycerin, after consulting on or off line medical control
 - i) patient systolic BP >100
 - ii) given every 3-5 minutes (max. 3 doses)
 - c) If patient's own, physician prescribed Nitroglycerin not available or appropriate;
 - i) continue oxygen
 - ii) allow patient to achieve safe position of comfort
 - 2) Patient unresponsive
 - a) Check respirations and pulse
 - b) Begin CPR if not provided during Initial Patient Assessment (see CPR, page 30). If EMS NO-CPR form/bracelet intact, follow protocol for EMS NO-CPR
 - c) Provide supplemental oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment, (see Oxygen Delivery, page 34)
 - d) Attach Automatic External Defibrillator (AED) if available

DIABETIC EMERGENCIES

A. Signs And Symptoms

- 1) Hypoglycemia (Develops rapidly)
 - a) Dizziness and headache
 - b) Abnormal, hostile or aggressive behavior
 - c) Fainting, convulsions
 - d) Full rapid pulse
 - e) Skin pale, cold and clammy
 - f) Copious saliva, drooling
- 2) Hyperglycemia (Develops slowly)
 - a) Dry mouth, and intense thirst
 - b) Abdominal pain and vomiting
 - c) Restlessness
 - d) Weak rapid pulse
 - e) Dry, red, warm skin

B. Emergency Medical Care

- 1) If patient is able to swallow, administer oral glucose, or substance high in simple sugar; i.e., honey, orange juice with 2-3 tsp. of sugar, after consulting on or off line medical control
- 2) Be prepared for patient to vomit
- 3) Provide supplemental oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment, (see Oxygen Delivery, page 34)
- 4) Maintain body temperature

C. Transport

- 1) Place patient in position of comfort, preferably lying on their side, and be prepared for patient to vomit
- 2) If patient regains full consciousness and refuses transport, consult with medical control

GYNECOLOGICAL EMERGENCIES

Excessive Vaginal Bleeding

A. Emergency Care

- 1) Provide supplemental oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment, (see Oxygen Delivery, page 34)
- 2) Treat for shock (see Shock, page 26)
- 3) If bleeding due to trauma to external genitalia, place appropriate external dressings to any wounds

Sexual Assault

Note: Protect Potential Crime Scene and any Evidence as Much as Possible.

A. Emergency Care

- 1) Provide supplemental oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment, (see Oxygen Delivery, page 34)
- 2) Follow treatment protocols for victims of trauma
- 3) Advise patient not to wash, douche, urinate or defecate prior to physician exam
- 4) Do not examine genitalia unless obvious bleeding requires the application of a dressing
- 5) Provide non-judgmental emotional support

OBSTETRICAL EMERGENCIES

Emergency Delivery

- A. Determine
 - 1) Date of expected birth
 - 2) Onset of contractions/pain
 - 3) Any bleeding or discharge
 - 4) Number of pregnancies/births
 - 5) Duration and frequency of contractions
- B. Signs And Symptoms Of Imminent Delivery
 - 1) Perineum bulging or baby crowning
 - 2) Contractions < 2 minutes apart
 - 3) Mother expresses the need to "push" or "bear down"
- C. Emergency Medical Care
 - 1) Have mother lie supine with knees drawn up and spread apart
 - 2) Prepare OB kit
 - 3) When the infant's head appears during crowning, place fingers on bony part of skull and exert very gentle pressure to prevent explosive delivery
 - 4) When head is delivered, suction infant's nose and mouth with bulb syringe
 - 5) Assist delivery of shoulders and body; do not pull on infant
 - 6) When baby is delivered;
 - a) Wipe blood and mucus from mouth and nose, suction mouth and nose again
 - b) Assure patient airway, stimulate cry by tapping soles of feet
 - c) Do APGAR assessment on infant one minute after delivery (appearance, pulse, grimace, activity, respiratory effort (see APGAR, page 29)
 - d) Wrap infant in warm blanket and place on its side, head slightly lower than trunk
 - e) Keep infant level with vagina until the cord is cut
 - f) As pulsations cease; double clamp, tie and cut cord between two clamps
 - 7) Let placenta deliver normally
 - Note: Do not pull on cord.
 - a) Place in plastic bag and transport with mother
 - b) Massage mother's lower abdomen until firm
 - c) Place sterile pad over vaginal opening
 - 8) Estimate blood loss, treat for shock as necessary
 - 9) Record time of delivery

COMPLICATIONS OF DELIVERIES

Miscarriage - Spontaneous Abortion

- A. Signs And Symptoms
 - 1) Cramp-like lower abdominal pain similar to labor
 - 2) Moderate to severe vaginal bleeding, which may be bright or dark red
 - 3) Passage of tissue or blood clots
- B. Emergency Medical Care
 - 1) Provide supplemental oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment, (see Oxygen Delivery, page 34)
 - 2) Treat for shock (see Shock, page 26)
 - 3) Place sterile pad over vaginal opening
 - 4) Bring fetal tissues to the hospital

Prolapsed Cord

- A. Signs And Symptoms
 - 1) Cord presents through the birth canal before delivery
 - 2) Normally occurs early in labor
- B. Emergency Medical Care
 - 1) Provide supplemental oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment, (see Oxygen Delivery, page 34)

- 2) Position mother in knee chest position or extreme Trendelenburg
- 3) Insert sterile gloved hand into vagina pushing the presenting part of the fetus away from the pulsating cord
- 4) Keep pressure on presenting part and monitor pulsations in the cord
- 5) Continue monitoring pulsations until relieved at the hospital

Breech Birth and/or Limb Presentation

A. Signs And Symptoms

- 1) Buttocks or extremities present first during the delivery process

B. Emergency Medical Care

- 1) Provide supplemental oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment, (see Oxygen Delivery, page 34)
- 2) Allow delivery to progress spontaneously
- 3) Support infant's body as it is delivered
- 4) If head delivers spontaneously, proceed as with normal delivery - If head does not deliver within 4-6 minutes, insert gloved hand into vagina, create an airway for the baby
- 5) Place mother in head down position with pelvis elevated
- 6) Do not remove hand from inside vagina until relieved by hospital staff

Meconium Stain

A. Signs And Symptoms

- 1) Greenish or brownish-yellow amniotic fluid rather than clear
- 2) Discoloration/staining on infant's face
- 3) Often indicates possible fetal distress during labor

B. Emergency Medical Care

- 1) Do not stimulate infant to breath prior to suctioning
- 2) Suction oropharynx and nasopharynx
- 3) Maintain infant's airway

Pre-delivery Seizures

A. Signs And Symptoms

- 1) Mild pre-eclampsia
 - a) Hypertension (moderate, above 140 and below 160)
 - b) Edema
 - c) Rapid weight gain
- 2) Moderate to severe
 - a) Hypertension above 160 systolic
 - b) Headache
 - c) Changes in behavior
 - d) Visual disturbances
 - e) Dyspnea
 - f) Cyanosis
- 3) Eclampsia (any of the above plus)
 - a) Seizure
 - b) Postictal

B. Emergency Care

- 1) Provide supplemental oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment, (see Oxygen Delivery, page 34)
- 2) Take seizure precautions (see Seizures, page 16)
- 3) Transport patient preferably lying on left side

POISONING/OVERDOSE

CAUTION: Do not expose yourself to toxic atmospheres or substances without proper training, PPE and other equipment. If caregiver or patient is exposed consider primary HAZMAT decontamination.

Note: Life threatening airway/respiratory compromise or shock may develop as the reaction progresses, consider ALS.

A. Ingested Substances

- 1) Signs and symptoms: history of ingestion, nausea, vomiting, diarrhea, altered mental status, abdominal pain, chemical burns around the mouth, different breath odors
- 2) Emergency medical care
 - a) Remove pills, tablets or fragments from patient's mouth
 - b) Provide oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment, (see Oxygen Delivery, page 34)
 - c) Consult medical control
 - i) Consult poison control as directed
 - ii) Activated Charcoal - 1 gram per kilogram of body weight, OR;
 - iii) Syrup of Ipecac - 2 tablespoons and 2, 8 oz. glasses of any safe liquid (water, milk, soda pop, etc.) for adults and children. Repeat in thirty minutes if the patient does not vomit.
 - iv) Contraindications for either medication include altered mental status, ingestion of acids/alkalis, inability to swallow

B. Inhaled Substances

- 1) Signs and symptoms: history of inhalation of toxic substance, difficulty breathing, chest pain, cough, hoarseness, dizziness, headache, confusion, seizures, altered mental status
- 2) Emergency medical care
 - a) Provide oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment (see Oxygen Delivery, page 34)

C. Toxic Injection (see Bites and Stings, page 17)

- 1) Signs and symptoms: weakness, dizziness, chills, fever, nausea, vomiting
- 2) Emergency medical care
 - a) Provide oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment (see Oxygen Delivery, page 34)
 - b) Treat open wounds

D. Absorbed Substances

- 1) Signs and symptoms: history of exposure, liquid or powder on patient's skin, burns, itching, irritation, redness
- 2) Emergency medical care
 - a) Skin - remove contaminated clothing while protecting self from contamination
 - i) If powder present, brush off patient. then irrigate as with liquid in ii below)
 - ii) Irrigate with water for at least 20 minutes, continuing enroute to the hospital, if possible
 - b) Eye - irrigate with clean water away from unaffected eye for at least 20 minutes, continuing enroute to the hospital if possible

E. Be Prepared For Vomiting, Seizures Or Further Deterioration Of The Patient

F. Bringing All Containers, Bottles, Labels, Etc. Of Poison Agents To Receiving Facility

RESPIRATORY EMERGENCIES

- A. Assess Onset/Provocation/Quality/Radiation/Severity/Time
 - B. Signs And Symptoms
 - 1) Anxious/restless
 - 2) Shortness of breath (air hunger, increased/decreased/absent respirations)
 - 3) Skin color changes (cyanotic, pale/clammy, redness/flushing)
 - 4) Abnormal airway noises (wheezing, stridor, gurgling, snoring)
 - 5) Mechanics of respiration (fatigue due to breathing effort, diaphragmatic breathing, retractions, irregular breathing pattern)
 - 6) Patient position (upright, feet dependent; tripod)
 - 7) Drooling, difficulty swallowing, seal bark cough
 - C. Allergies/Medications/PM Hx/Last Oral Intake/Events Prior
 - D. Emergency Medical Care
 - 1) Patient c/o SOB/inadequate respirations
 - a) Remove obstruction if any (see Airway Obstruction, page 29)
 - b) Provide supplemental oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment, (See Oxygen Delivery, page 34)
 - c) Allow patient to achieve position of comfort (POC)
 - d) Prepare to manage/assist respirations as necessary
 - i) patient not breathing
 - ii) patient unable to maintain adequate breathing on their own
 - 2) Patient c/o SOB with wheezing
 - a) Provide supplemental oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment, (See Oxygen Delivery, page 34)
 - b) Assist with self administration of inhaler
 - i) if available and prescribed for patient
 - ii) consult with medical control
 - E. Pediatric Considerations
 - 1) Airway obstruction (see Airway Obstruction, page 29)
 - a) Use infant/child foreign body airway procedures if complete obstruction
 - b) If incomplete obstruction
 - i) do not agitate patient
 - ii) allow patient position of comfort
 - iii) oxygen/limited exam
 - 2) Patient drooling, with difficulty swallowing, or seal bark cough
- Note:** Do not attempt to visualize oropharynx.
- a) Assist ventilations p.r.n.
 - b) Provide supplemental oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment, (see Oxygen Delivery, page 34)
 - c) Allow patient to achieve position of comfort (parent's lap p.r.n., except during transport)
- F. Be Prepared To Provide Positive Pressure Ventilation Should Patient Deteriorate
- G. Monitor Patient And Vital Signs Closely

SEIZURES

A. Signs And Symptoms

- 1) May experience sensory changes
 - a) Aura
 - b) Abnormal twitch
 - c) Anxiety
 - d) Dizziness
 - e) Smell, vision, taste
- 2) Sudden unresponsiveness
- 3) Convulsions
- 4) Loss of bowel and bladder control
- 5) Postictal (recovery phase)
 - a) Confusion, disoriented and possibly combative
 - b) Exhausted and weak

B. Emergency Medical Care

- 1) Maintain airway
- 2) Provide oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment (see Oxygen Delivery, page 34)
- 3) Suction as needed
- 4) Prevent injury to the patient

C. Pediatric Considerations - Febrile Seizure

- 1) Signs and symptoms
 - a) Oral or rectal temperature > 100°
 - b) Convulsions
- 2) Emergency Medical Care
 - a) Remove heavy or swaddling clothes, keep lightly dressed
 - b) Maintain airway
 - c) Provide oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment (see Oxygen Delivery, page 34)
 - d) Suction as needed

D. Transport Patient On Their Side

NOTE: Conditions that may cause seizures:

- Epilepsy • Fever • Infections • Poisoning • Hypoglycemia (low blood sugar) • Stroke
- Head trauma • Hypoxia (oxygen starvation) • Dysrhythmia (abnormal heart rhythms)
- Pre-delivery seizure, usually related to severe high blood pressure (eclampsia)

BITES AND STINGS - VENOMOUS

A. Signs And Symptoms

- 1) History of bite (spider, snake) or sting (insect, scorpion or marine animal)
- 2) Pain
- 3) Redness and/or swelling
- 4) Weakness and/or dizziness
- 5) Chills or fever
- 6) Nausea and vomiting
- 7) Bite marks or stinger

B. Emergency Medical Care

- 1) If stinger is present, scrape the sting site to remove the stinger
Note: Do not attempt to pull the stinger.
- 2) Wash area gently
- 3) Remove jewelry from the affected limb before swelling begins, if possible
- 4) Keep limb immobilized and below the level of the heart and keep patient at rest
- 5) Do not apply cold to a snakebite
- 6) Consult medical direction regarding constricting band for snakebite
- 7) Observe for development of signs and symptoms of an allergic reaction (see Allergies, page 7)

DROWNING AND NEAR DROWNING - WATER RELATED EMERGENCIES

CAUTION: Assure the safety of the rescue personnel.

A. Signs And Symptoms

- 1) Consider length of time in cold water drowning. Any pulseless, non-breathing patient who has been submerged in cold water should have resuscitation efforts initiated (See Hypothermia, page 20)
- 2) Suspect spinal injury

B. Emergency Medical Care

- 1) All drowning and near-drowning patients
 - a) In-line immobilization and removal from water with a backboard if spine injury is suspected or the patient is unresponsive
 - b) If there is no suspected spinal injury, place patient on left side to allow water, vomitus and secretions to drain from the upper airway
 - c) Provide supplemental oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment, (see Oxygen Delivery, page 34)
 - d) If gastric distention interferes with artificial ventilation
 - i) place patient on their left side, while continuing to protect the c-spine
 - ii) suction immediately available
 - iii) place hand over the epigastric area of the abdomen
 - iv) apply firm pressure to relieve the distention

Note: This procedure should only be done if the gastric distention interferes with the ability to artificially ventilate the patient effectively.
- 2) For pulseless and non-breathing drowning patients, follow the Cardiovascular Emergencies protocol (see page 10)
 - a) For pulseless and apneic drowning patients, consult medical control

HEAT EMERGENCIES

A. Signs And Symptoms

- 1) Muscular cramps
- 2) Weakness or exhaustion
- 3) Dizziness or faintness
- 4) Skin
 - a) Moist, pale, normal to cool temperature
 - b) Hot, dry or moist (extreme emergency)
- 5) Rapid heart rate
- 6) Altered mental status or unresponsive

B. Emergency Medical Care

- 1) Patient with moist, normal to cool temperature skin
 - a) Remove patient from the hot environment and place patient in a cool environment (back of an air conditioned ambulance)
 - b) Provide oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment (see Oxygen Delivery, page 34)
 - c) Loosen or remove clothing
 - d) Cool patient by fanning
 - e) Place patient in supine position with legs elevated
 - f) If patient is responsive and not nauseated, have patient drink water
 - g) If the patient is unresponsive or is vomiting, transport to hospital with patient on left side
- 2) Patient hot with dry or moist skin
 - a) Remove patient from the hot environment and place patient in a cool environment (back of an air conditioned ambulance with air conditioner running on high)
 - b) Provide supplemental oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment, (see Oxygen Delivery, page 34)
 - c) Remove clothing
 - d) Apply cool packs to neck, groin and armpits
 - e) Keep skin wet by applying water by sponge or wet towels
 - f) Fan aggressively
 - g) Transport to hospital immediately

HYPOTHERMIA

A. Signs And Symptoms

- 1) Environmental conditions of cold exposure
- 2) Cool to cold skin temperature
- 3) Decreased mental and/or motor status
- 4) Stiff or rigid posture or muscles
- 5) Shivering may be present or absent
- 6) Abnormal breathing
 - a) Early/rapid
 - b) Late/slow or absent
- 7) Low to absent blood pressure
- 8) Slowly responding pupils
- 9) Inappropriate judgment
- 10) Complaints of joint or muscle stiffness
- 11) Skin may be red (early), pale, cyanotic, and/or stiff/hard

B. Emergency Medical Care

- 1) Obtain temperature using hypothermia thermometer, if not available, estimate temperature using the Core Body Temperature chart (see page 30)
- 2) Remove patient from the cold environment and protect the patient from further heat loss
- 3) Remove patient's wet clothing and wrap the patient in blankets
- 4) Handle with extreme care (rough handling may cause ventricular fibrillation)
- 5) Care for shock and provide oxygen (warm and humidify the oxygen, if possible)
- 6) Assess pulses for 30 to 45 seconds before starting CPR
 - a) If no pulse, begin CPR (see Cardiopulmonary Resuscitation, page 30)
 - b) Place AED
 - c) Continue efforts to rewarm
 - d) If pulseless and directed by the machine, defibrillate (defibrillation may be successful after warming)
 - e) If pulseless, continue CPR and warming throughout transport
 - f) Although patients suffering from hypothermia should be evaluated on an individual basis, in general, patients should be warmed to normal temperatures before stopping resuscitation
- 7) If the patient is alert and responding appropriately, actively rewarm
 - a) Warm blankets
 - b) Heat packs or hot water bottles to groin, axillary and cervical regions
 - c) Turn up heat high in the patient compartment of the ambulance
 - d) Do not allow patient to have any stimulants (caffeine, chocolate, etc.)
 - e) Do not allow the patient to walk or exert themselves
- 8) If the patient is unresponsive or not responding appropriately, rewarm passively
 - a) Warm blankets
 - b) Turn up heat high in the patient compartment of the ambulance
- 9) Do not massage extremities
- 10) Do not allow patient to remain in, or return to, a cold environment
- 11) Do not permit the patient to become colder, don't leave them exposed

C. Check And Record Pulse And Vitals, Including Temperature

D. Transport All But The Very Mildest Cases

E. Handle Patient Gently (Ventricular Fibrillation May Result From Rough Handling)

LOCAL COLD INJURIES

A. Signs And Symptoms

- 1) Local injury with clear demarcation
- 2) Early or superficial injury
 - a) Blanching of the skin
 - b) Loss of feeling and sensation in the injured area and the skin remains soft
 - c) If rewarmed, tingling sensation
- 3) Late or deep injury
 - a) White, waxy skin which feels firm to frozen on palpation
 - b) Swelling and/or blisters may be present
 - c) Blisters may be present
 - d) If thawed or partially thawed, the skin may appear flushed with areas of purple and blanching or mottled and cyanotic

B. Emergency Medical Care

- 1) Remove patient from the cold environment and protect the patient from further heat loss
- 2) Protect the cold injured part from further injury
- 3) Remove wet or restrictive clothing
- 4) If early or superficial
 - a) If the injury is to an extremity, splint and cover the extremity
 - b) Do not rub, massage, or re-expose to the cold
- 5) If the injury is late or a deep cold
 - a) Remove jewelry
 - b) Cover with dry clothing or dressings
 - c) Do not rub, massage, apply heat, or rewarm
 - d) Do not allow the patient to walk on the affected extremity
- 6) Do not allow patient to remain in or return to a cold environment
- 7) When an extremely long or delayed transport is inevitable, then active rapid rewarming should be done as follows:
 - a) Obtain medical direction prior to initiating rewarming
 - b) Use warm water (100 F - 105 F)
 - c) Fill container with water. Remove clothing, jewelry, bands, or straps from the injured extremity
 - d) Fully immerse the injured part
 - e) Continuously stir the water
 - f) When water cools to below 100 F, remove limb and add more warm water
 - g) When extremity is rewarmed (it is soft and the color and sensation has returned)
 - i) gently dry affected area and apply a dry sterile dressing
 - ii) be sure fingers and toes are separated by sterile dressings
- 8) Keep area warm and not put any pressure on the site
- 9) Keep patient at rest and protect the part from refreezing
- 10) Expect the patient to complain of severe pain

GENERAL TRAUMA ASSESSMENT

1. Scene Size-Up

- A. Assess For Number Of Multiple Trauma Patients
- B. Activate Local Emergency System As Necessary Following Regional Patient Care Procedures

2. Initial Patient Assessment

- A. A.B.C.
- B. Establish Patient Care Priorities As Soon As Possible
 - 1) Triage multiple patients
 - a) Notify receiving facility
 - 2) Follow the Trauma Triage Procedures (see page 38)
 - a) Notify the trauma center as soon as possible

3. Rapid Or Focused History And Physical Exam (Trauma)

- A. Deformities, Contusions, Abrasions, Punctures - Burns, Tenderness, Lacerations, And Swelling (DCAP-BTLS)
- B. Pulse, Movement, Sensation (PMS)
- C. Vital Signs
- D. SAMPLE History
- E. Glasgow Coma Scale (GCS) (see Glasgow Coma Scale, page 32)

4. Ongoing Assessment

- A. Re-evaluate Initial Patient Assessment Items
 - 1) Unstable patient a maximum of every 5 minutes
 - 2) Stable patient every 15 minutes

5. Transport

- A. Mode Of Transportation And Destination Based On Regional Patient Care Procedures
- B. Prioritize Patient Transport

ABDOMINAL INJURY

A. Signs And Symptoms

- 1) Tender, rigid or distended abdomen
- 2) Position (guarding)
- 3) Signs and symptoms of shock
- 4) Consider abdominal spinal injury
- 5) Wounds, (entrance/exit), bruising
- 6) Consider pregnancy (see Obstetrical Emergencies, page 12)

B. Emergency Medical Care

- 1) Assure patent airway
- 2) Provide oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment (see Oxygen Delivery, page 34)
- 3) Do not touch or try to replace exposed organs
 - a) Cover exposed organs with sterile/moist dressing
- 4) Control bleeding
- 5) Treat for shock (see Shock, page 26)
- 6) Pregnancy (see page 12)
- 7) Consider use of the MAST/PASG
- 8) Mechanical head and spine immobilization as necessary
- 9) Give nothing by mouth
- 10) Position supine with flexed knees, if no contraindications

BURN INJURY

CAUTION: Identify source of burning and take appropriate safety precautions.

Note: Stop the burning process.

Note: For burns involving chemicals, refer to the Poisoning/Overdose protocol (see page 14).

Note: Burns may be more severe than they first appear.

A. Signs And Symptoms

- 1) Evaluate depth and area by using Rule of Nines appendix (see page 36)
- 2) Carefully evaluate respiratory tract for involvement
- 3) Shock

B. Emergency Medical Care

- 1) Assure patent airway
- 2) Provide oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment (See Oxygen Delivery, page 34)
 - a) continuously reassess respiratory status
- 3) Remove jewelry and non-adhered clothing as necessary
- 4) Cover burns with dry sterile dressing
- 5) Control bleeding
- 6) Treat for shock (see Shock, page 26)
 - a) Consider use of the MAST/PASG

Note: If patient needs to be transported, follow local burn center protocols as directed by medical control and regional patient care procedures.

CHEST INJURY

A. Signs And Symptoms

- 1) Changes in respiratory rate/quality
- 2) Breath sounds diminished, unequal, or absent
- 3) Flail chest
- 4) Use of accessory muscles
- 5) Distended neck veins (JVD)
- 6) Consider thoracic spinal injury
- 7) Shock
- 8) Wounds, (entrance/exit), bruising
- 9) Complaints of pain with inspiration or expiration

B. Emergency Medical Care

- 1) Assure patent airway
- 2) Provide oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment (see Oxygen Delivery, page 34)
 - a) continuously reassess respiratory status
- 3) Pneumothorax
 - a) Cover immediately
 - b) When time allows, place an occlusive dressing
- 4) Flail Chest
 - a) Strapping, if pain is significant
- 5) Control bleeding
- 6) Treat for shock (see Shock, page 26)
- 7) Mechanical head and spine immobilization as necessary

EXTERNAL BLEEDING AND AMPUTATIONS

A. Signs And Symptoms

- 1) Spurting/steady flowing or oozing blood
- 2) Bright red or dark blood
- 3) Separated or displacement of body part or tissue
- 4) Shock

B. Emergency Medical Care

- 1) Assure patent airway
- 2) Provide oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment (see Oxygen Delivery, page 34)
- 3) Control bleeding
 - a) Direct pressure/pressure point
 - b) Elevation
 - c) Splints
 - d) MAST/PASG
 - e) Tourniquet
 - f) Apply dressing and bandage
- 4) Do not remove impaled objects
 - a) Unless impaled in cheek and airway is compromised by the object
 - b) Secure in place
- 5) Treat for shock (see Shock, page 26)
- 6) Amputations
 - a) Wrap severed body part in dry sterile dressing
 - b) Wrap or bag amputated part in plastic and keep cool (do not allow to freeze)
 - c) Transport severed part with patient, if possible
 - d) Treat for shock (see Shock, page 26)

Note: Do not complete partial amputations.

EXTREMITY INJURY

A. Signs And symptoms

- 1) Exposed bone ends
- 2) Joints locked in position
- 3) Loss of feeling or movement
- 4) Loss of distal pulse
- 5) Bruising/swelling
- 6) Pain
- 7) Shock
- 8) Multiple long bone fracture

B. Emergency Medical Care

- 1) Assure patent airway
- 2) Provide oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment (see Oxygen Delivery, page 34)
- 3) Consider alignment with gentle traction if pulses absent or gross deformity noted
- 4) Mechanical immobilization
 - a) Reassess distal PMS after applying splint
 - b) Consider application of cold pack to painful or swollen area
 - c) Consider elevation of extremity
- 5) Control bleeding
- 6) Treat for shock (see Shock, page 26)
- 7) Consider use of the MAST/PASG

HEAD AND SPINE INJURY

A. Signs And Symptoms

- 1) Cerebrospinal fluid or blood from nose, ears, mouth
- 2) Glasgow coma scale score (see Glasgow Coma Scale, page 32)
- 3) Bruising around eyes, or behind ears
- 4) Altered mental status
- 5) Irregular breathing
- 6) Changes in pulse rate
- 7) Changes in blood pressure
- 8) Neurologic disability
- 9) Loss of bowel or bladder control
- 10) Unequal pupils with altered mental status
- 11) Seizures

B. Emergency Medical Care

- 1) Immediate manual head and C-spine immobilization
- 2) Assure patent airway
- 3) Provide oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment (see Oxygen Delivery, page 34)
- 4) Control bleeding
- 5) Treat for shock (see Shock, page 26)
- 6) Mechanical head and spine immobilization

MULTI-SYSTEM/TIME CRITICAL TRAUMA

A. Begin Extrication (If Necessary) And Treatment Simultaneously, If Possible

- 1) Immediate manual head and C-spine immobilization

B. Treat Life Threatening Injuries As They Are Found

C. On-Scene Time Should Be Limited To 10 Minutes, Barring Extrication Or Rescue

D. Notify The Trauma Center As Soon As Possible

E. Assess For Other Signs And Symptoms

- 1) Provide rapid survey of head, chest, abdomen

F. Provide Emergency Medical Care As Necessary

- 1) Provide any urgent treatment required

G. If Life Threatening Problems Are Controlled

- 1) Assess response to treatment provided
- 2) Immobilize patient

SHOCK

Note: For anaphylaxis, refer to Allergies (see Allergies, page 7).

A. Signs And Symptoms

- 1) Altered mental status
- 2) Shallow/rapid breathing
- 3) Restlessness/anxiety
- 4) Cyanosis or pale skin color
- 5) Cool/clammy skin
- 6) Weak rapid pulse
- 7) Decreasing blood pressure
- 8) Nausea/vomiting
- 9) Dilated pupils
- 10) Thirst

B. Emergency Medical Care

- 1) Assure patent airway
- 2) Provide oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment (see Oxygen Delivery, page 34)
 - a) Continuously reassess respiratory status
- 3) Control bleeding
- 4) Consider use of the MAST/PASG
- 5) Give nothing by mouth
- 6) Elevate lower extremities, if no contraindications
- 7) Splint fractures
- 8) Prevent heat loss

PEDIATRIC ASSESSMENT

1. Scene Size-up And Initial Patient Assessment

A. Assess ABC

- 1) Airway - Do not hyperextend or hyperflex child's neck
- 2) Breathing - Check for obstructions
- 3) Circulation - Check capillary refill

B. Consider Possible Domestic Violence Or Abuse By Adults

2. Focused Assessment And Physical Examination

- A. Consider The Patient's Developmental Stage When Assessing Signs And Symptoms
- B. Physical Exam May Be Better Tolerated If Conducted From Trunk To Head
- C. Be Alert For Signs Of Child Abuse And Neglect (see Physical Abuse and Neglect, page 28)

3. Ongoing Assessment

4. Transport

- A. Utilizing Regional PCPs, Local Guidelines, and Protocols Regarding Pediatric Trauma Destinations

FEVER

CAUTION: Consider full body substance isolation procedures.

A. Signs And Symptoms

- 1) Flushed, warm dry skin
- 2) Restless
- 3) May have rash or stiff neck
- 4) Seizures
- 5) Dehydration, decreased urine output

B. Emergency Medical Care

- 1) Provide supplemental oxygen and/or ventilatory assistance as necessary, if not done during Initial Patient Assessment, (see Oxygen Delivery, page 34)
- 2) If prolonged transport is necessary
 - a) Undress child to the underwear
 - b) Use tepid water to cool patient

GERIATRIC EMERGENCIES

1. Scene Size-up And Initial Patient Assessment

- A. General Cleanliness Of The Environment
- B. Availability Of Food And Water
- C. Hazards In The Home
- D. Observe For Signs Of Physical Abuse/Neglect (see page 28)
- E. If Many Medications, Take Them Or A List Of Them To The Hospital

2. Focused Assessment

A. Determine

- 1) Establish quick and effective rapport with patient and family
- 2) Level of function with his/her own function prior to problem
- 3) Past medical history to assess present condition and anticipate effect of one disease on another
- 4) If in long-term care, determine reason for their being there and present condition requiring EMS

B. Emergency Medical Care

1) Medical

- a) Altered Mental Status (see page 8)
- b) Behavioral Emergencies (see page 9)
- c) Cardiovascular Emergencies (see page 10)
- d) Diabetic Emergencies (see page 11)
- e) Environmental Emergencies (see pages 17-21)
- f) Gynecological Emergencies (see page 11)

2) Trauma

- a) Cause of trauma may be medical
- b) Age > 60 at higher risk for mortality and morbidity
- c) Treat according to trauma treatment protocols for specific trauma (see pages 22-26)

PHYSICAL ABUSE AND NEGLECT

A. Signs And Symptoms Of Suspected Abuse And Neglect

- 1) Multiple bruises in various stages of healing
- 2) Injury inconsistent with mechanism described
- 3) Repeated calls to the same address
- 4) Fresh burns
- 5) Parents or care giver seem inappropriately unconcerned
- 6) Conflicting stories
- 7) Fear on the part of the patient to discuss how the injury occurred
- 8) Lack of adult supervision
- 9) Malnourished appearance
- 10) Unsafe living environment
- 11) Untreated chronic illness

B. Medical Treatment

- 1) Follow appropriate treatment protocol

AIRWAY OBSTRUCTION - FOREIGN BODY

	Adult 8 years old	Child 1-8 years old	Infant birth to 1 year
Ventilations	10-12 per/min	20 per/min	20 per/min
If unable to ventilate, reposition head and reattempt ventilation. If still unsuccessful:			
Tongue/Jaw lift and Finger Sweep	If unconscious	If unconscious and object is seen	If unconscious and object is seen
Abdominal Thrusts	Sets of 5	Sets of 5	Not Used
Chest Thrusts	Only if victim pregnant or obese	Not Used	Sets of 5 back blows followed by 5 chest thrusts
Back Blows	Not Used	Not Used	
Continue the above sequence until successful. If patient resumes effective breathing, place in recovery position. If unable to clear airway within one minute, begin transport, continue sequence enroute, and consider ALS rendezvous.			

APGAR SCORING

Sign	0	1	2	Points
Appearance (Color)	Blue, pale	Body pink, extremities blue	Completely pink	
Pulse Rate (Heart rate)	Not detectable	Slow (below 100)	Over 100	
Grimace (Irritability)	No Response	Grimace	Cry	
Activity (Muscle Tone)	Limp	Some Flexion	Active Motion	
Respirations (Respiratory effort)	Absent	Slow, irregular	Good, crying	
TOTAL				

SCORE		
Point Total	Infant's Condition	Treatment Considerations
10	Very Good	Routine
7 - 9	Good	Routine
4 -6	Fair	May need stimulation and oxygen
0 - 3	Poor	May need oxygen by bag-valve- mask and CPR

CARDIOPULMONARY RESUSCITATION

	<i>Adult</i>	<i>Child</i>	<i>Infant</i>
Age	8 yrs. and older	1 - 8 yrs.	birth - 1 year
Duration of Each Ventilation	1 1/2 to 2 seconds	1 to 1 1/2 seconds	1 to 1 1/2 seconds
Pulse Check Location	carotid artery	carotid artery	brachial artery
Compression Depth	1 1/2 to 2 inches	1 - 1 1/2 inches	1/2 to 1 inch
One-rescuer CPR compression to ventilation ratio	15:2	5:1	5:1
Two-rescuer CPR compression to ventilation ratio	5:1	5:1	5:1

CORE BODY TEMPERATURE

Note: Use A Hypothermia Thermometer.

CORE BODY TEMPERATURE

SYMPTOMS

99 F-96 F	37.0 C-35.5 C	Shivering
95 F-91 F	35.5 C-32.7 C	Intense shivering. If conscious patient has difficulty speaking.
90 F-86 F	32.0 C-30.0 C	Shivering decreases. Strong muscular rigidity. Thinking is less clear, general comprehension is dulled, possible total amnesia. Muscle coordination erratic and jerky. Patient generally able to maintain the appearance of psychological contact with surroundings.
85 F-81 F	29.4 C-27.2 C	Irrational. Loses contact with environment drifts into a stuporous state. Muscular rigidity continues. Pulse and respirations are slow and cardiac arrhythmias may develop.
80 F-78 F	26.6 C-20.5 C	Patient loses consciousness and does not respond to spoken words. Most reflexes cease to function. Heart-beat becomes erratic.

EPINEPHRINE AUTO-INJECTOR

- ***Medication Name***

- generic: Epinephrine
- trade: Adrenaline, Epi-Pen, Epi-Pen Jr.,

- ***Indications***

- patient exhibits signs of a severe allergic reaction, including either respiratory distress or shock .

- ***Contraindications***

- no contraindications when used in a life-threatening situation

- ***Dosage***

- adult: one adult auto-injector (0.3 mg.)
- infant and child: one infant/child auto-injector (0.15 mg.)

- ***Actions***

- dilates the bronchioles
- constricts blood vessels

- ***Side Effects***

- increased heart rate, chest pain, cardiac arrhythmias, cardiac arrest
- pallor
- dizziness
- chest pain
- headache
- nausea
- vomiting
- excitability, anxiety

GLASGOW COMA SCALE

Eye Opening				
Score	Adult	Pediatric - Greater Than 1 year	Pediatric - Less Than 1 Year	
4	Spontaneous	Spontaneous	Spontaneous	
3	To Voice	To Voice	To Shout	
2	To Pain	To Pain	To Pain	
1	No Response	No Response	No Response	
Best Motor Response				
Score	Adult	Pediatric - Greater Than 1 year	Pediatric - Less Than 1 Year	
6	Obeys Commands	Obeys Commands	Spontaneous	
5	Localizes Pain	Localizes Pain	Localizes Pain	
4	Withdraws To Pain	Withdraws To Pain	Withdraws To Pain	
3	Flexion To Pain	Flexion To Pain	Flexion To Pain	
2	Extension To Pain	Extension To Pain	Extension To Pain	
1	No Response	No Response	No Response	
Best Verbal Response				
Score	Adult	Pediatric - Greater Than 5 years	Pediatric 2 to 5 Years	Pediatric 0 to 23 Months
5	Oriented	Oriented and converses	Appropriate Words and Phrases	Smiles, Coos
4	Confused	Disoriented and Converses	Inappropriate Words	Cries, Consolable
3	Inappropriate Words	Inappropriate Words	Persistent Cries and/or Screams	Persistent Inappropriate Crying and/or Screaming
2	Incomprehensible Words	Incomprehensible Sounds	Grunts	Grunts, Agitated/ Restless
1	No Response	No Response	No Response	No Response
USE THE BEST PATIENT RESPONSE FOR EACH CATEGORY.				
Note: Lowest possible score = 3; Highest possible score = 15				

NITROGLYCERIN

Medication Name

- generic: Nitroglycerin
- trade: Nitrostat, Nitrobid, Nitrolingual Spray

Indications

- chest pain, thought to be of cardiac origin

Contraindications

- baseline systolic BP is below 100 mm/Hg
- head injury suspected
- patient is infant or child
- three doses have already been taken by the patient

Medication Form

- tablet, sublingual spray

Dosage

- one tablet or one spray under the tongue
- may be repeated in three to five minutes if no relief, not contraindicated, and medical direction authorizes
- may not give more than three dosages

Action

- dilates blood vessels
- decreases heart workload

Side Effects

- headache
- decreased blood pressure
- changes in pulse

ORAL GLUCOSE

Medication Name

- generic: Glucose, oral
- trade: Glutose, Insta-glucose, etc.

Indications

- patient with an altered mental status and a known history of diabetes.

Contraindications

- unconsciousness
- known diabetic who has not taken insulin for days
- unable to swallow

Medication Form

- gel in toothpaste-type tubes

Dosage

- one tube

Action

- increases blood sugar

Side Effects

- none when properly administered (may be aspirated by patient without a gag reflex)

OXYGEN DELIVERY

OXYGEN ADMINISTRATION REFERENCE CHART		
Method	Flow Rate (in liters per minute)	% Oxygen Delivered
Room Air		21
Nasal Cannula (prongs)	1	24
	2	28
	4	31
Face Mask (simple)	6	35-40
	10	40-50
Nonrebreather Face Mask *(1)	12	80
	15	90
Face Mask with Oxygen Reservoir Bag	10-12	90
Pocket Mask	10	50
	15	80
	30	100 *(2)
Bag Valve Mask	Room Air	21
	12	40 - 90 *(3)
Positive Pressure Device (demand valve) *(4)	100	100
*(1) Delivery system of choice for patients with inadequate breathing and patients who are cyanotic, cool clammy, short of breath, or suffering chest pain, suffering severe injuries, or displaying an altered mental status, or being transported.		
*(2) This is accomplished by occluding breathing port with thumb.		
*(3) Depends on brand of bag valve mask and provisions for occluding room air inlet.		
*(4) Should not be used on children under 12 years old.		
NOTES:		
1. Administration rates by nasal cannulae of over 4 L/min. are uncomfortable.		
2. Use humidified oxygen, when possible, on infants, children, suspected respiratory tract burns, and transports exceeding one hour duration.		
3. Bag Valve mask is not recommended for use in patients in transport situations.		
4. Most hypoxic patients will feel better with an increase in delivered oxygen from 21% to 24%.		
5. Pressure cycled ventilators are NOT acceptable alternatives to oxygen therapy.		
6. Percentages of delivered oxygen listed above are based on optimal conditions. Altitude, equipment, etc., may decrease percentages of delivered oxygen.		

OXYGEN BOTTLE VOLUME AND FLOW				
Bottle Size	Volume in Liters	Time @ 5 L/min.	Time @ 10 L/min.	Time @ 15 L/min.
D	360	1 hr. 12 min.	36 min.	24 min.
E	625	2 hrs. 5 min.	1 hr. 3 min.	42 min.
M	3,200	10 hrs.	5 hrs.	3 hrs. 20 min.
G	5,300	17 hrs. 40 min.	8 hrs. 50 min.	5 hrs. 53 min.
H	6,900	23 hrs.	11 hrs. 30 min.	7 hrs. 40 min.
1. The above values are based on full bottle (2,000 to 2,200 p.s.i.) @ 70 degrees F.				
2. Allow for pressure drop of 5 p.s.i. for every 1 degree drop in temperature below 70 degrees F.				

PULSE, BLOOD PRESSURE, AND RESPIRATION - RANGES

NORMAL RANGES OF ARTERIAL BLOOD PRESSURES (mm/Hg)			
Newborn	80 / 46	8-9 Years	106 / 58
6-12 Months	89 / 60	9-10 Years	108 / 58
1 Year	96 / 66	10-11 Years	112 / 58
2 Years	98 / 64	11-12 Years	114 / 60
3 Years	100 / 68	12-13 Years	116 / 60
4 Years	98 / 66	13-14 Years	118 / 60
5 Years	94 / 56	Male Adult	Systolic: Patient's Age + 100 (Up to 150 mmHg) Diastolic: 60 to 90 mmHg
6-7 Years	100 / 56	Adult Female	Systolic: Patients Age + 90 (Up to 140 mmHg) Diastolic: 50 to 80 mmHg

Note:

The systolic values given above may vary up or down from the mean significantly, and still remain in the normal range as follows:

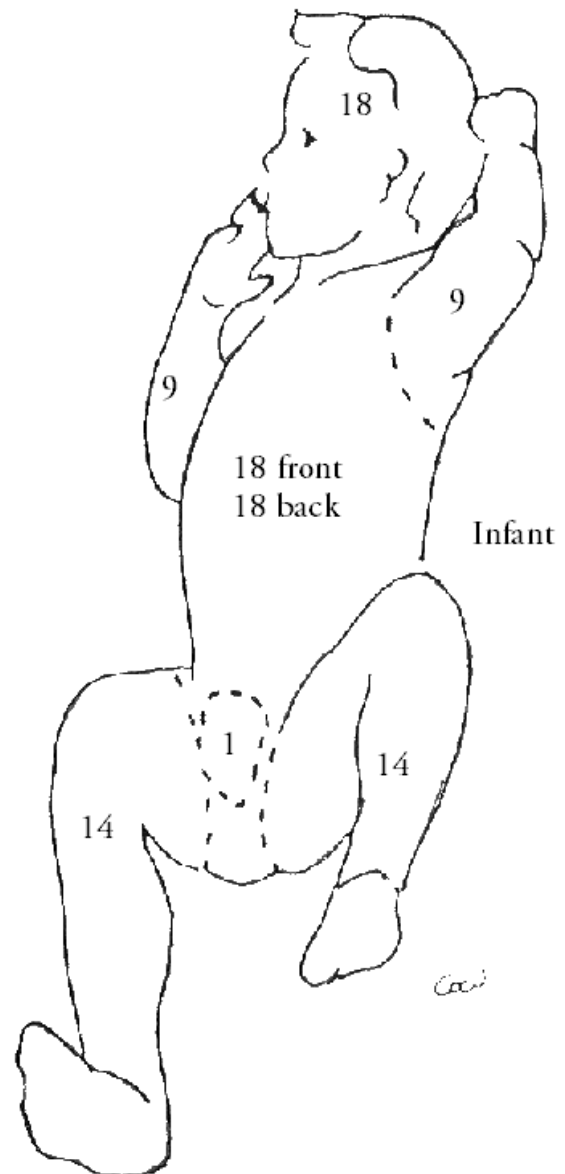
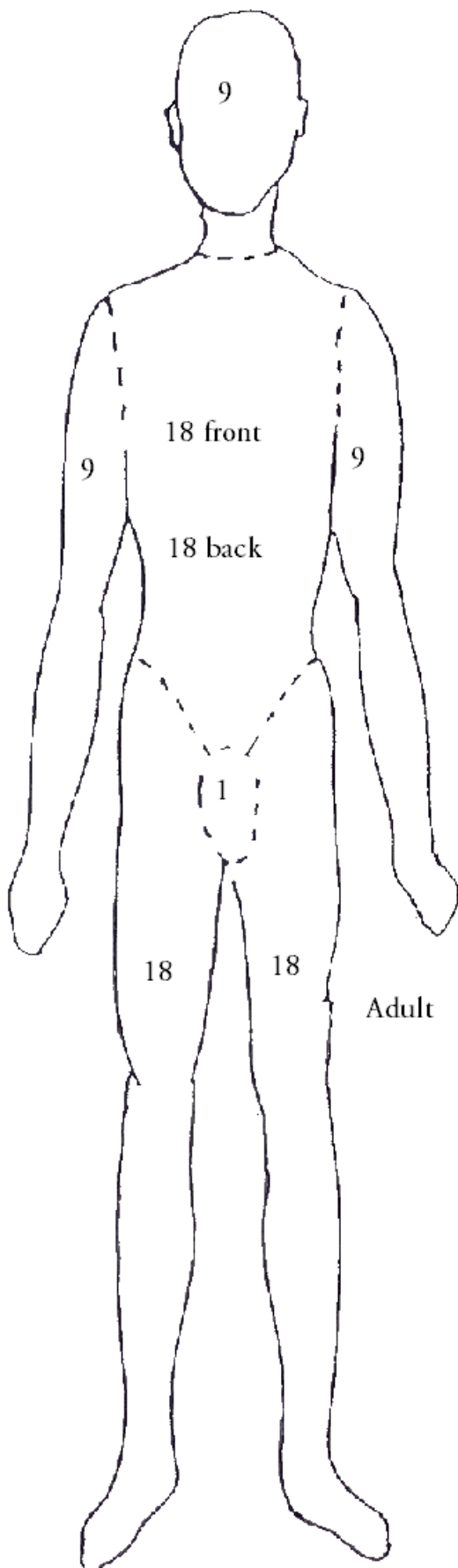
Newborn + or - 16
6 Mos. - 4 Years + or - 25
4 Years - 10 Years + or -16
10 Years - 14 Years + or -18

The diastolic values given above (for Newborn through 14 Years old) may vary up to + or - 24 mm/Hg from the mean and still remain in the normal range.

NORMAL PULSE RATES (HEART BEATS PER MINUTE)			
Newborn	110 - 150	6 Years	80 - 100
11 Months	100 - 140	8 Years	76 - 90
2 Years	90 - 110	10 Years	70 - 110
4 Years	80 - 120	Adult	60 - 100

NORMAL RESPIRATORY RATES (RESPIRATIONS PER MINUTE)			
Neonate	30 - 50	10 Years	14 - 22
2 Years	20 - 30	Adolescent and Adult	12 - 20

RULE OF NINES - ESTIMATING BURNS



START TRIAGE APPENDIX

Simple Triage And Rapid Treatment

1. RPM method of identifying immediate patients;
Respirations, Perfusion, Mental status
2. Triage Criteria
 - A. Immediate (Red)
Respirations >30 per minute or absent until head repositioned, or
Radial pulse absent or capillary refill > 2 seconds, or
Can not follow simple commands
 - B. Delayed (Yellow)
Respirations present and < 30 per minute, and
Radial pulse present, and can follow simple commands
 - The saying is 30 - 2 - can do, represents a delayed patient.
 - C. Minor (Green)
Anyone that can get up and walk when you instruct them to do so.
 - D. Deceased (Black)
Anyone not breathing after you open the airway
3. This system is limited to use in the incident where needs exceed resources immediately available
4. Frequently reassess patients and perform a more in-depth triage as more rescuers become available

STATE OF WASHINGTON
PREHOSPITAL TRAUMA TRIAGE (DESTINATION) PROCEDURE

Purpose

The purpose of the Triage Procedure is to ensure that major trauma patients are transported to the most appropriate hospital facility. This procedure has been developed by the Prehospital Technical Advisory Committee (TAC), endorsed by the Governor's EMS and Trauma Care Steering Committee, and in accordance with RCW 70.168 and WAC 246-976 adopted by the Department of Health (DOH).

The procedure is described in the schematic with narrative. Its purpose is to provide the prehospital provider with quick identification of a major trauma victim. If the patient is a major trauma patient, that patient or patients must be taken to the highest level trauma facility within 30 minutes transport time, by either ground or air. To determine whether an injury is major trauma, the prehospital provider shall conduct the patient assessment process according to the trauma triage procedures.

Explanation of Process

- A. **Any certified EMS and Trauma person can identify a major trauma patient and activate the trauma system.** This may include requesting more advanced prehospital services or aero-medical evacuation.
- B. **The first step (1) is to assess the vital signs and level of consciousness.** The words "Altered mental status" mean anyone with an altered neurologic exam ranging from completely unconscious, to someone who responds to painful stimuli only, or a verbal response which is confused, or an abnormal motor response.
- C. The "and/or" conditions in Step 1 mean that any one of the entities listed in Step 1 can activate the trauma system.
- D. Also, the asterisk (*) means that if the airway is in jeopardy and the on-scene person cannot effectively manage the airway, the patient should be taken to the nearest medical facility or consider meeting up with an ALS unit. These factors are true regardless of the assessment of other vital signs and level of consciousness.
- E. **The second step (2) is to assess the anatomy of injury.** The specific injuries noted require activation of the trauma system. Even in the assessment of normal vital signs or normal levels of consciousness, the presence of any of the specific anatomical injuries does require activation of the trauma system.
- F. Please note that steps 1 and 2 also require notifying Medical Control.
- G. **The third step (3) for the prehospital provider is to assess the biomechanics of the injury and address other risk factors.** The conditions identified are reasons for the provider to contact, and consult with, Medical Control regarding the need to activate the system. They do not automatically require system activation by the prehospital provider.
- H. Other risk factors, coupled with a "gut feeling" of severe injury, means that Medical Control should be consulted and consideration given to transporting the patient to the nearest trauma facility.
- I. Please note that certain burn patients (in addition to those listed in Step 2) should be considered for immediate transport or referral to a burn center/unit.

Patient Care Procedures

To the right of the attached schematic you will find the words "according to DOH-approved regional patient care procedures." These procedures are developed by the regional EMS and Trauma council in conjunction with local councils. They are intended to further define how the system is to operate. They identify the level of medical care personnel who participate in the system, their roles in the system, and participation of hospital facilities in the system. They also address the issue of inter-hospital transfer, by transfer agreements for identification, and transfer of critical care patients.

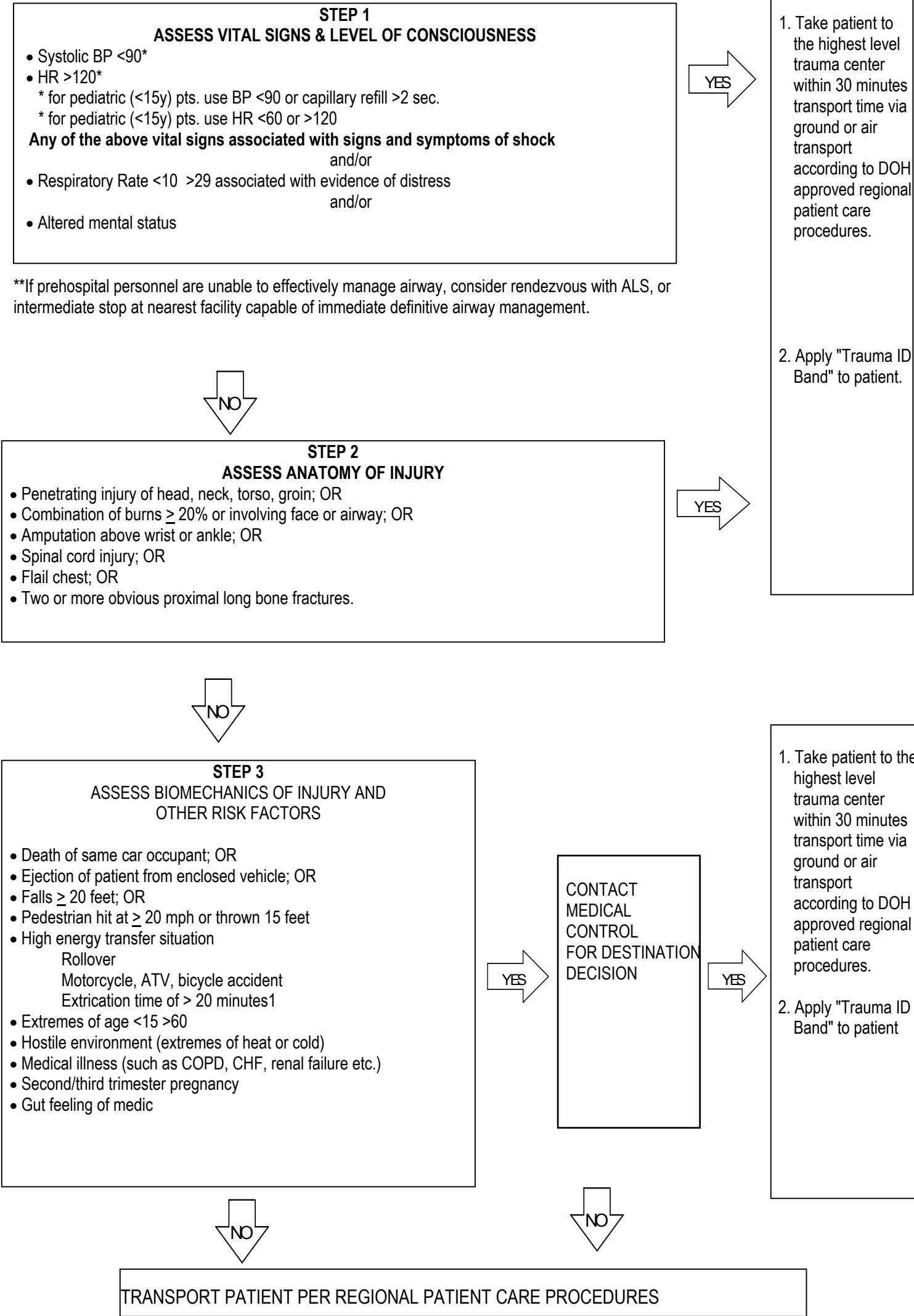
In summary, the Prehospital Trauma Triage Procedure and the Regional Patient Care Procedures are intended to work in a "hand in glove" fashion to effectively address EMS and Trauma patient care needs. By functioning in this manner, these two instruments can effectively reduce morbidity and mortality.

If you have any questions on the use of either instrument, you should bring them to the attention of your local or regional EMS and Trauma council or contact 1-800-458-5281.

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STATE OF WASHINGTON
PREHOSPITAL TRAUMA TRIAGE (DESTINATION) PROCEDURES

- Prehospital triage is based on the following 3 steps:
Steps 1 and 2 require prehospital EMS personnel to notify medical control and activate the Trauma System. Activation of the Trauma System in Step 3 is determined by medical control**



AUTOMATED EXTERNAL DEFIBRILLATION - NARRATIVE

Pending Arrival of ALS Personnel

I. Initial Intervention

- A. Initial assessment (ABC's)
- B. If no pulse:
 - 1. Begin **CPR** until defibrillator attached.
 - 2. Attach defibrillation electrodes and press **Analyze**.

II. Defibrillation Sequence

- A. If shock advised, **defibrillate** up to **3 times** as needed (200, 300, 360)

Note: Pulse checks not necessary between shocks unless "No Shock Advised".

- B. Check Pulse

Note: If patient hypothermic, limit shocks to 3, continue CPR until ALS arrival.

- C. If no pulse:
 - 1. **CPR** for 1 minute then check pulse
 - 2. If no pulse press **Analyze**
 - 3. **Defibrillate**, 360 up to **3 times** as necessary

Note: Pulse checks not necessary between shocks unless "No Shock Advised".

- 4. **CPR** for 1 minute
- D. Check Pulse
- E. If no pulse:
 - 1. Press **Analyze**
 - 2. **Defibrillate**, 360 up to **3 times** as necessary.

Note: Pulse checks not necessary between shocks unless "No Shock Advised".

III. Persistent V-Fib

- A. If V-fib persists after 9 shocks, repeat sets of 3 stacked shocks with 1 minute of CPR between each set until "No Shock Advised".

Note: Continue stacked shock sequence until V-fib no longer present or patient converts to perfusing rhythm.

- B. IF V-fib recurs, shock at energy level used for initial conversion (i.e. if patient converts at 300 and then V-fib recurs, begin shock sequence at 300).

IV. Patient Regains Pulse (Return of Spontaneous Circulation)

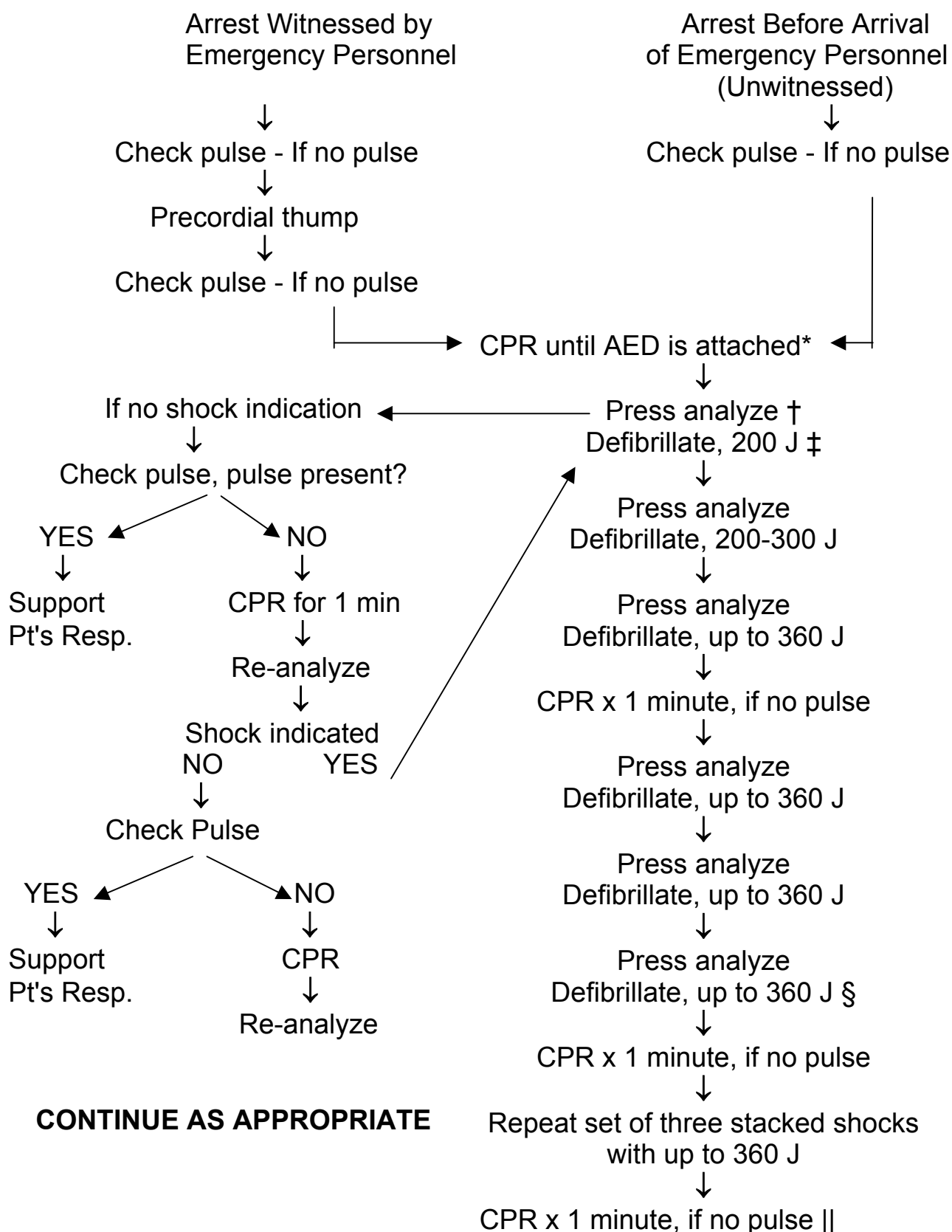
- A. If the patient regains pulse or pulse present during the above sequence:
 - 1. Assess vital signs.
 - 2. Support airway and breathing.

V. Other Considerations

- A. "No Shock Advised" and no pulse present
 - 1. Resume CPR and Re-Analyze after 1-3 minutes.
- B. Provide CPR if AED is not functioning (see AED Algorithm, page 41).

AUTOMATED EXTERNAL DEFIBRILLATION - ALGORITHM

(Recommended treatment algorithm for ventricular fibrillation and pulseless ventricular tachycardia when ACLS cannot be provided and an automated external defibrillator and a trained provider are present) NOTE: Automated external defibrillation is not used in cardiac arrest in children less than 12 years of age and less than 90 lbs



* The single rescuer with an AED should verify unresponsiveness, open the airway (A), give two respirations (B), and check the pulse (C) If a full cardiac arrest is confirmed; the rescuer should attach the AED and proceed with the algorithm.

†If "no shock indicated" appears, check pulse, repeat 1 minute of CPR, and then reanalyze. After three "no shock indicated" messages are received, repeat analyze period every 1-2 minutes.

‡Pulse check is not required after shocks 1, 2, 4, and 5 unless the "no shock indicated" message appears.

§If ventricular fibrillation recurs after transiently converting (rather than persists without ever converting), restart the treatment algorithm from the top.

||In the unlikely event that ventricular fibrillation persists after nine shocks, then repeat sets of three stacked shocks, with 1 minute of CPR between each set.

Flow chart based on information from the American Heart Association.

If you would like a copy of these protocols please write:

Office of Emergency Medical and Trauma Prevention
PO Box 47853
Olympia, WA 98504-7853

or call:

(360) 705-6700

ONE OF THE BEST FIELD PROTOCOLS FOR TRAUMA IS A **BUCKLED** SEAT BELT.

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